

REMARKS

Applicants respectfully request reconsideration of the above-captioned application. Claims 1-13 are currently pending. Claims 1, 9 and 11 have been amended, and the new heat treating recitations are supported at page 8 of the original specification.

The Office Action includes a rejection of claims 1, 2 and 11-13 under 35 U.S.C. §102(a) as allegedly being anticipated by Japanese Patent Publication 2001-256967. This rejection is respectfully traversed.

The publication date, and therefore the apparent effective prior art date, of this document is October 21, 2001. The present application, however, claims priority to Korean Application 2001-25111 which was filed August 28, 2001. By the filing of the attached certified translation of this Korean priority application, Applicants effectively overcome the rejection under 35 U.S.C. §102(a). See, MPEP 706-02(b). However, the claims also have a technical distinction which renders the claims patentable. Therefore, a certified translation has not been prepared at this time.

The Japanese patent publication does not teach heat treating an intermetallic compound in the range of 300°C to 550°C. As explained at page 8 of the originally filed specification, the temperature of the heat treatment is closely related the crystallinity of the intermetallic compound of tin and nickel. If the heat treatment is less than 300°C, the intermetallic compound is so weak as to not maintain a crystal structure during charging/discharging cycles leading to deterioration of the cycle characteristics. If the heat treatment temperature is greater than 550°C, grains

increase in size during heat treatment so that the grain boundary function which acts as a host of the lithium intercalation/deintercalation is reduced to thus exhibit a decrease in the capacity of the intermetallic compound. Japanese Patent Publication 2001-25111 neither discloses this heat treatment, the physical change it creates in the intermetallic compound, nor does it appreciate the critical nature of the temperature range.

Hence, the claims are patentable by right of priority if perfected and by this technical distinction. Of course, as the Examiner has acknowledged, the patentability of claims 3-10 is not implicated by this patent publication.

The Office Action also includes a rejection of claims 1, 11 and 13 under 35 U.S.C. §102(b) as allegedly being anticipated by Japanese Patent Publication 11-86854. This rejection is also respectfully traversed.

Japanese Patent Publication 11-86854 provides a veritable laundry list of materials that could be used as the negative electrode of a lithium secondary battery. It identifies a phase-storing lithium as being made of 3B, 4B, 5B group elements and a phase which stores no lithium which may be made of 4A, 5A, 6A group elements. Even if one were to accept only the specifically suggested laundry list of any of elements Al, Ga, In, Si, Ge, Sn, Pb, Sb, Bi to be combined with any of Mn, Fe, Co, Ni and Cu, the possible permutations of the compounds, particularly when viewed in light of at least one, and possibly more, of the elements selected from each group, leads to permutations numbering in the tens of thousands. This does not provide meaningful guidance to one of ordinary skill in the art as to which permutation might be advantageous. Instead, this patent publication merely identifies possible

compounds for consideration and, in its particular embodiments, suggest Si, Al-Cu or NiSi in a mere six examples, none of which combine tin and nickel as an intermetallic compound evaporation source for an anode thin film of a lithium secondary battery.

It has been held that the lack of meaningful guidance to the particular compound claimed by Applicants among many possibilities does not result in the anticipation or the rendering of a claimed invention to be obvious. See, MPEP 2144.08. The fact that a claimed species is covered by a prior art genus is not sufficient to sustain a *prima facie* case of obviousness. In re Baird, 16 F.3d 380, 382, 29 USPQ2d 1550, 1552.

It is noted that this patent publication also does not identify heat treating of the intermetallic compound in the range of 300 to 550°C and thus is separately patentable for this additional reason.

The Office Action further includes a rejection of claims 1, 2 and 9-13 under 35 U.S.C. §102(e) as allegedly being anticipated by the *Bito et al.* patent (U.S. Patent No. 6,265,111). This rejection is also respectfully traversed.

What the *Bito et al* patent actually discloses is a rechargeable negative electrode that comprises an alloy of particles having the composition represented by the formula $\text{Li}_x\text{M}^1_a\text{M}^2$ where M^1 represents at least one element selected from the group consisting of Ti, Zr, V, Sr, Ba, Y, La, Cr, Mo, W, Mn, Co, Ir, Ni, Cu and Fe and M^2 represents at least one element selected from the group consisting of Mg, Ca, Al, In, Si, Sn, Pb, Sb, Bi and where M^1 and M^2 represents different elements from each other and have at least two phases which are different in composition from each other. These materials include the phase A and phase B materials listed in Table 1.

Further, additional materials such as graphite powder are added to the negative electrode, such as disclosed at column 8, lines 28-34. However, the only mention of a heat treatment observed by the undersigned appears at column 8 where the mixture for the *positive* electrode is heated to 900°C, which is not only the wrong electrode but outside the range recited in the currently pending claims.

Accordingly, it is respectfully submitted that the *Bito et al.* patent does not anticipate claims 1, 2 or 9-13.

Finally, the Office Action includes a rejection of claims 3-8 under 35 U.S.C. §103 as allegedly being unpatentable over the *Bito et al* patent in view of Japanese Patent Publication No. 4-308081. This rejection is respectfully traversed.

Regardless of the teachings of this Japanese patent publication, the fact nevertheless remains that neither of the applied documents teach an intermetallic compound of tin and nickel that has been heat treated in the range of 300 to 550°C.


Conclusion

In light of the foregoing, Applicants respectfully request reconsideration and allowance of the above-captioned application. Should any residual issues exist, the Examiner is invited to contact the undersigned at the number listed below.

Respectfully submitted,

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